GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST-OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, JUNE 30, 1897.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLE:—Natural Beauty in Urban Parks 251
Private Forestry and State Forestry.—III. ..... *C. A. Schenck.* 252
Dock Gardens. (With plan) ..... *W. Hamilton Bell.* 252
Roots in Commerce.—I. ..... *M. B. C.* 253

PLANT NOTES:—New Plants in Santa Barbara ..... *F. Franceschi.* 254
Iris Robinsoniana. (With figure.) 255

CULTURAL DEPARTMENT:—Seasonable Notes ..... *E. O. Orpet.* 256
Plants in Flower at Wellesley, Massachusetts ..... *T. D. Hatfield.* 256
Rock Garden Notes ..... *G. W Oliver.* 256
Greenhouse Notes ..... *W. H. Taplin.* 257

CORRESPONDENCE:—Sycamore Blight ..... *R. A. S. and Professor Byron D. Halsted.* 257
The Durability of Pitch Pine ..... *W. A. S.* 258

EXHIBITIONS:—Horticulture at the Tennessee Centennial Exposition, *Professor William R. Lazenby.* 258
Boston Rose and Strawberry Show ..... *R.* 258

RECENT PUBLICATIONS 259

NOTES 260

ILLUSTRATIONS:—Suggestion for a Dock Park by Edw. Hamilton Bell 253
Iris Robinsoniana in a California Garden, Fig. 33 255

Natural Beauty in Urban Parks.

WHETHER our appreciation of the beauty of natural scenery becomes profounder and more sympathetic with what we fondly term the advance of civilization is a subject which it is not our purpose here to discuss, although volumes have been written on the question. What we do know beyond dispute is that men and women of refined taste always feel something like indignation when they see natural beauty needlessly defaced. It is this sentiment which moved the Prime Minister of England a few years ago to advocate an act of Parliament to protect the scenery of Great Britain from vulgarization by the paint-pot of the advertiser, which impelled the Massachusetts Legislature to pass a law making it unlawful to proclaim in staring characters the virtues of a patent medicine, and which has clothed the Park Board of this city with authority over signs erected within three hundred feet of the public grounds in this city. The same feeling impelled Mr. Charles Eliot, seven or eight years ago, and his co-workers not only to make an organized effort to protect beautiful scenery from disfigurement, but to secure it as a possession of the people forever. To serve this end the Board of Trustees of Public Reservations was founded, which has been the model for many other organizations of this sort. No one can doubt, too, that the great majority of the enlightened people of Greater New York feel that somehow their personal rights are invaded by the disfigurement of the Palisades which is now going on, and there can be no question that the Legislature of this state never passed an act more thoroughly in accord with the sentiment of the whole people than the one which set apart Niagara Falls as a reservation to be the property of all the people. The National Government has recognized the same sentiment in not permitting Yosemite Valley and the Yellowstone region to pass into the hands of individuals as private property, but has taken these two great national wonders, as well as certain Sequoia groves, and held them permanently for public enjoyment.

In regard to places so noteworthy for sublimity or features of unique beauty there seems to be a feeling that these, at least, are the common heritage of all the people, and it runs counter to our innate sense of right that great mountain peaks or natural objects of commanding grandeur should be the private property of an individual to be monopolized for personal profit or subject to the passing whims of any puny mortal. But if we adopt this reasoning we may as well go a step further and hold that all natural beauty is the inheritance of all the people, that it has a distinct value to them just as clear air and pure water have, and that the men who needlessly scar the face of nature or turn it into a desert when they bore their oil wells, dig out ore, quarry rocks, or build factories and railroads, are as truly public enemies as those who pollute springs of running water or load the air with noxious vapors. It is certain, at all events, that men who appreciate their duties as citizens will not needlessly mar the beauty of the earth in which we live, they will not wantonly destroy the forests which give a glory to our landscapes, and they will treat with reverence natural scenery whose grandeur has an elevating influence and whose beauty brings refreshment to the spirit.

We are safe, too, in asserting that beautiful natural scenery has a positive value as a refreshment to the mind, especially of those who are worn and wearied by the stress of city life. This is not a mere metaphor. It is asserted over and over again, not only by poets and philosophers who give expression to the profoundest truths in our nature, but the curative value of natural scenery is distinctly recognized by the medical profession. All of us have felt the soothing and restful influence of natural beauty, acting in a subtle way through the very highest functions of our being, and tending to establish sound minds in sound bodies. When a city possesses a piece of scenery like Mount Royal, for example, it owns something more than so many acres of land whose beauty has power to attract the residents of the city to visit it for the sake of fresh air or exercise, or for a change of mental occupation. Such scenery, as is delightfully shown in a pamphlet published by Mr. Frederick Law Olmsted nearly a score of years ago, acts "in a directly remedial way to enable men to better resist the harmful influences of ordinary town life and recover what they lose from them. It is thus, in medical phrase, a prophylactic and therapeutic agent of vital value. There is not one in the apothecaries' shops as important to the health and strength and to the earning and taxpaying capacities of a large city." Whenever, therefore, a city possesses park-lands with exceptionally beautiful features, their preservation, even from a pecuniary standpoint, means the saving of capital; it is the husbanding of a source of health which is the source of all wage-earning power and the foundation of all wealth. The preservation and enhancement of natural beauty in public parks ought, therefore, to be insisted on, not from sentimental considerations alone, but for reasons based on the most substantial and practical truth.

When we consider the almost universal admiration and even affection among civilized men and women for broad natural landscapes, for "scenery as distinct from scenes," and consider its special restoring effect upon those who suffer from the nervous strain of city life, we have the one justifying reason for large urban parks. Small parks and playgrounds, formal squares, plazas and promenades are all valuable for other purposes, but for the highest rest and refreshment nothing will fill the place of stretches of beautiful natural scenery. Artificiality, the needless intrusion of buildings, anything which interferes with seclusion and the actual contact and communion with pure nature, defeats to some extent the highest purpose of such parks. The idea should never be harbored that rural parks can be improved by buildings however noble, by any work of art which is not entirely in harmony with the spirit of the scene, or by so-called decorative gardening, however choice and rare the plants employed. It is with regret, therefore, that we hear of a threat to erect a large museum in one of the Buffalo parks. No mattter how stately the building will be, no matter how attractive or instructive the material it contains, it must forever be a defacement to the

scenery, which is the essence of the value of the park. No city in the world possesses more beautiful scenery or a park area more thoroughly characteristic of what is most delightful in the landscape of the part of the world in which it is situated than does New York in Bronx Park. There seems to be some danger that a portion of it which has been handed over to the directors of the Botanical Garden may be marred by the intrusion of buildings which could be placed elsewhere. Let us hope that conservative counsel will prevent any such desecration. The city spent money like water to create some charming natural scenery in what is now Central Park by blasting out ridges of rock, filling in the spaces with soil, and turning this desert of stone into tree-flecked meadow-land. Now that it has come into possession of scenery far more beautiful and ready-made, it would be worse than folly to destroy it.

Private Forestry and State Forestry.—III.

TOWNSHIPS* and counties, generally speaking, are scarcely qualified to own such reservations. Nearly all of these are so poor or so unstable as to render forest management impossible, except such as is merely meant for revenue. The population of the counties is too shifting to be interested in far-reaching local undertakings. Besides, if all the surrounding counties do not unite in the scheme, steps toward solving the forest question by a single community are useless. Forests are most needed in counties situated in mountainous regions, at the headwaters of the streams. But these are the very counties that, suffering comparatively little from the consequences of forest destruction, do not care to spend any money in the matter. The lowland counties are the interested ones, but they cannot legislate for the territory of other counties. The state alone, as the aggregate of all the counties, is capable of establishing and managing reservations. A public loan to buy such areas as must necessarily be kept under forest-cover —whether wood-clad now or not—might be obtained at a low rate of interest, as the security, consisting of real estate, renders it a safe investment. The United States, if necessary, might guarantee such loans, thus still further reducing the interest to be paid.†

There is most need of purchase by the state of such tracts as cover the steepest and highest ridges. These tracts command the lowest price, being but thinly stocked and more exposed to fire than to the lumberman's axe. Large areas, usually of bare land, are annually sold for taxes.‡ The state should secure those that are suited for a reservation and reopen them to the production of timber, which, in most cases, is the only possible product. Reforestation cannot, of course, be accomplished at once. It can be done gradually, the most urgent cases first. When protected from fire, some part of such reservation will be restocked in the course of time by nature. If any human action, apart from fire protection, is needed on such part, it will only be the closing of ravines and gullies. Any delay will greatly increase the cost, the land becoming more impoverished, natural regeneration more doubtful and the gullies growing worse. The less feasible it is to enforce maintenance of a forest-cover on lands owned by private persons the more urgent is the duty of the state to secure such tracts for itself.

A singular solution of the forest question is at the present moment recommended by the Minnesota State Forestry Association to the legislature of that state. The plan, drafted by Captain Judson W. Cross, provides "that persons may deed to the state for forestry purposes such land as is unfit for agriculture, reserving the right of hunting for themselves, and the right to dig, mine and carry away such minerals, oils and coals as may be found on such land." No taxes are to be paid on it. The expected revenue from forest crops is to be divided as follows: Two-thirds shall be paid to an educational institution, and the remaining third to state, county and township, to reimburse them for loss of taxes. The Minnesota forestry plan, if it becomes a law, will provide an inexpensive method by which the state may secure large bodies of lands, which is the first and most important step toward state forestry. The next step is protection from fire, after which forest management might follow.

I might here describe the means by which the German Government has induced wealthy individuals to buy utterly worthless land and plant it with trees after having restored it to productiveness by steam-plowing and drainage. Such plantations are free from taxes for forty or fifty years.* The Government forest guards protect them from fire in connection with the work of protecting Government lands; the plants are furnished from excellent Government nurseries at cost price. The usefulness of this latter arrangement I cannot state strongly enough, and similar methods should be at least tried in this country.† The idea is not at all contrary to American principles; why can we not distribute plants from Government nurseries as fish are distributed from Government hatcheries? The prices which commercial nurseries quote are simply exorbitant, and the dealers are not prepared to furnish the kinds required in sufficient quantities at any price. Plants produced in forest nurseries en masse can be raised at one-tenth the expense.

Private enterprises, although fostered by the state, will, however, never solve the forest question. State forest reservations are a necessity wherever forests act as "barriers against losses." The reservations must be protected from marauders and fires by a staff of forest guards, with the necessary number of officers. The forest guards, wherever feasible, should also be employed in enforcing fish and game and forest-fire laws on private lands which may surround the reservations. An administration of this kind is as economical as it is effective. Strict discipline and freedom from political influence are necessary, and therefore a connection with the army seems advisable.‡

Biltmore, N. C. *C. A. Schenck.*

Dock Gardens.

PIER parks or promenades were suggested by Mr. W. D. H. Washington in a report to the Tenement-house Commission of 1894. The idea so evidently contains the germ of practical relief for a crowded population in hot weather that under the charter for Greater New York the Dock Board is expressly authorized to plan certain piers in such a way that they will serve for purposes of recreation.

Mr. Olmsted once said, in support of a proposal to make a waterside park, that in such parks "for one acre of land you procured a thousand acres of space and fresh air." Mr. Washington states that a dozen of such pier parks as this could probably be created for little more than the cost of a park covering a single block in the city. His description will do equally well for the present plan, on page 253, which claims no other merit than an attempt to design an attractive formal garden and playground on architectural lines for the space at command. The structure, 544 feet

* In Maine 1,000 acres of land are set aside in each township for public purposes, probably a good deal being timbered. But no enactment in reference to these lands exists. (Report of United States Division of Forestry, 1887, page 98.)

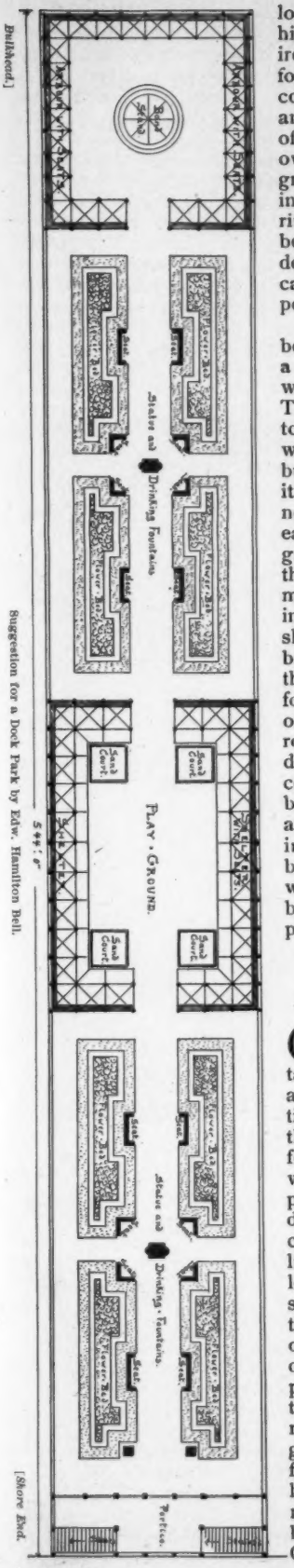
† Such a loan could and should be made the favorite investment of the thrifty workman, enabling him to invest money as safely as in a Government savings bank. The poor laborer all over the world is likely to lose his savings through investing them in speculations, the financial standing of which he has neither the education, the experience nor the means to investigate.

‡ In Pennsylvania the land advertised to be sold for taxes in June, 1894, amounted to more than one and a half million acres. (Governor D. H. Hastings' Message.)

* In the United States exemption from or reduction of taxes on areas planted up is granted in Massachusetts, Wisconsin, Dakota, Montana and Utah. Iowa has repealed a similar law in spite of its apparent success. Indiana is going to grant a small reduction.

† The United States Division of Forestry was created for "the collection and distribution of valuable economic tree seeds and plants," among other objects. For lack of funds, however, practically nothing has been done as yet. (Report of United States Division of Forestry, 1890, p. 197, and 1891, p. 193.) The direct aid which the United States Government has held out in the interest of forest culture has consisted in permitting the acquisition of Government lands in the treeless region free of expense, by planting one-sixteenth of the area to trees. This method has proved of little avail. (Report of United States Division of Forestry, 1890, p. 197.)

‡ Professor Charles S. Sargent's excellent plan (*Century Magazine*, February, 1895, page 626). The majority of the forest guards in Germany are taken from the army.



Suggestion for a Dock Park by Edw. Hamilton Bell.

long, 75 feet wide and 25 feet high, is to be built of steel and iron on the existing dock and foundation. The dock is flat, constructed on fire-proof arches and finished on top with a layer of Portland cement concrete, over which is a coat of asphalt, graded to carry off the water into gutters and thence into the river. Such a structure would be practically fire-proof. This dock would be reached by staircases at the land end under a portico.

The grass-plots and flower-beds would be surrounded by a curb to receive the soil in which the plants would grow. This gardening would need care to secure a maximum of effect with a minimum of expense, but need not be costly, though it would require annual renewal. Arbored walks could easily be covered with quick-growing flowering creepers and the beds filled with the common and ever-popular flowering plants. The portico and shelters roofed with iron could be provided with awnings like those on the open street-cars for shade and to turn a shower of rain. These shelters surround a playground for children, with a sand-heap in each corner. At the far end is a band-stand surrounded by arbor-shaded seats. Two drinking-fountains and plenty of benches complete the outfit, which should be surrounded by a high light fence for the prevention of accidents.

New York. *W. Hamilton Bell.*

Roots in Commerce.—I.

ONE scarcely realizes how largely products of vegetation enter into use in the arts and the household in construction, for utensils, food, and a thousand other purposes. If, for example, we take up a wholesale drug circular, in the part set aside for "drugs and dyes" one will find several columns which include price lists of woods, barks, flowers, leaves and roots. To give some idea of the variety of these materials, the distant parts of the world from which many of them come, and the purposes for which they are made to minister to the wants of man, it is only necessary to glance at a single section, as, for instance, the roots. A trade list of roots names such familiar native plants as Blackberry, Rubus villosus, and R. Canadensis (the Dewberry), the roots of which have tonic and strongly astringent qualities. Bloodroot, the root of Sanguinaria Canadensis, is also a regular article in trade. This plant, prized for its beautiful snowy flowers in early spring, is called also Puccoon, Tetterwort, Tumeric and Indian Paint, the latter name, doubtless, gained from the red juice of the bright-colored root. In trade its value is in its acrid, emetic properties and its use as a stimulant expectorant. The common Burdock, with its adhesive burs, a plant used largely as a food in Japan, as was described in an interesting article on page 143 in this volume, is one of the most popular of all the medicinal roots, both as a home remedy of country folks in springtime, and in pharmacy, and is an ingredient in many of the patent medicines sold as blood purifiers. So greatly has the demand increased in recent years that, besides the large quantities grown in America, probably one hundred tons a year are imported from Europe. It is specially cultivated abroad, and imported roots are of better quality than our home product and cheaper, seven cents a pound being an average wholesale price. Calamus, the spicy delicacy of country school children, is another standard article of commerce, and comes whole and sliced, some of it known as white calamus, being bleached. The root of Calamus, or Sweet Flag, Acorus Calamus, has a pungent, aromatic taste and is credited with stomachic properties. It is also used as an adjuvant to tonic or purgative medicines. About four-fifths of the quantity consumed in this country comes from Germany. The entire root sells for six and a half cents a pound in wholesale lots, while that which is bleached and sliced brings three to five times as much.

Of Dandelion-root about one hundred tons are used in this country each year, half of it home-grown and the remainder from the fields of Germany. Its commercial value consists in its use in hepatic derangements and digestive troubles generally. Roasted and powdered, it is sometimes bought for coffee by the unsuspecting housekeeper. A native of the southern United States, esteemed for use as an anti-periodic in malarial fevers, is the root of Gelsemium, the yellow or false Jasmine, G. sempervirens. Perhaps a dozen sorts of Snakeroot are regularly listed, this name being given to many plants whose form or color is suggestive of a serpent. That known as Virginia Snakeroot is Aristolochia Serpentaria; the Black Snakeroot of trade may be Sanicula Marilandica, or Cimicifuga racemosa, while Seneca snakeroot may be some Liatris or Eryngium; white snakeroot is Eupatorium ageratoides. The general name is also applied to other roots, all of which have some reputation as remedies for the bites of serpents, and they are used as stimulants.

One of the most widely distributed American plants, which is nevertheless the most costly of all the medicinal roots, notwithstanding that the medical profession here hardly recognize it and regard it as inert, is Ginseng, Aralia quinquefolia. The entire product is eagerly collected and sent to China, where the demand is constantly increasing. This root has somehow caught the fancy and faith of the Celestials and is highly prized as a cure-all, and especially for supposed rejuvenating qualities. When the supply for China depended entirely upon that grown at home the roots had fabulous value, with their supposed power to prolong life. Phenomenal prices are paid for roots, which, in Chinese imagination, resemble dragons or other mythical objects, and a specially grotesque specimen with an imaginary uplifted head, many legs and an angry-looking tail, in the hands of a New York exporter of the root is stated to be worth its weight in gold. Collectors find it as near-by as Westchester County, and, indeed, the largest and highest-priced roots come from New York, West Virginia and Pennsylvania. The southern gatherings are of smaller roots, but even these, mainly from Tennessee and Kentucky, command $2.70 a pound in wholesale lots here in New York, and larger ones of eccentric form from the northern states sell for $6.00 a pound. Another native root-stock used in pharmaceutical preparations is that of the herb

Golden Seal, Hydrastis Canadensis. Not only has the home demand greatly increased in recent years, but large quantities are exported, as the efforts to cultivate it abroad have not been successful. It grows in the rich moist soil of the woods of our north and north-western states, and the extract has a phenomenally wide range of uses. A century ago it was generally used by the Indians for making a yellow dye. Mandrake-root, the laxative remedy of many households, known under its botanical name of Podophyllum, the May-apple of our woodlands, is another article of export. Of course, this must not be confounded with the Mandrake of the Mediterranean region, which belongs to the Nightshade family, and whose fleshy, forked, narcotic roots are often supposed to resemble a man in form.

Pokeroot, as it is called in commerce, Phytolacca decandra, is credited with a variety of helpful and wholesome qualities; the berries are said to be useful to reduce obesity, while the roots are hopefully used for rheumatism and as a poultice to induce suppuration. The green roots are five or six inches in length, an inch in diameter, and divided into several branches; when dried they are a light yellowish brown in color and much wrinkled. They are odorless, with a somewhat sweet taste followed by a sense of acridity, and are said to be emetic, purgative and somewhat narcotic.

Among imported roots are Aconite, native to the mountain forests of France, Switzerland and Germany, and cultivated in the latter country and in Great Britain. It has been introduced into America as an ornamental flowering plant, and the roots cultivated in the United States are found to be richer in the active alkaline principle than those imported. The ancients understood its poisonous principles, but it was not until less than one hundred and fifty years ago that it was used in medicine, and considered beneficial for the circulation and the nervous system. Another poisonous European root is Belladonna, the Deadly Nightshade, which grows wild and is cultivated in Great Britain and Germany. The corms of Colchicum, Meadow Saffron, from France and southern Europe, are used as a principal ingredient in all the famous old English gout remedies. Of Gentian-root, which comes from France whole and powdered, about three thousand tons are used here annually as the basis of tonic medicines. It has the recommendation of cheapness, costing from six to seven cents a pound wholesale. Most largely used of all, and imported in hundred-ton lots from Asia Minor, Southern Russia, Greece and other south European countries, is Licorice, the slender sweet root of the leguminous plants Glycyrrhiza glabra and G. echinata. Besides the dried roots, much of the extract is imported in rolls packed in Laurel-leaves, that from Italy being of the highest quality, and similar rolls are manufactured in this country. In pharmacy it is used as a demulcent in cough mixtures, to modify the taste of unpleasant medicines and to give consistence to pills and troches. Large quantities are sold for flavoring confectionery, tobacco and beer, and since the time of Elizabeth it has been cultivated in England to supply the demand of porter brewers. The Orris-root of trade is the rhizome of certain species of Iris. That known as Florentine, from Italy, is the highest grade, north Africa furnishing a somewhat lower quality, while a cheaper kind comes from the East Indies. It was once esteemed as a stimulant, but now is used only in perfumery and to scent powders and oils. Its fragrance, which suggests violets, is acquired in drying. Squill, from which the popular croup syrup is manufactured, and known also as Sea Onion, is the large bulbous root of Urginea (Scilla) maritima, which sometimes weighs fifteen pounds. The root contains 22 per cent. of sugar, and is used in the manufacture of whisky in Sicily. The supply is drawn from the countries and islands of the Mediterranean. Ipecac, the root of Cephælis Ipecacuanha, reaches us from Brazil, by way of London, since the output is controlled by English capitalists, who keep the price to our importing merchants at an average of $1.50 a pound. Kava Kava, the large spongy root of Piper methysticum, comes from the Sandwich Islands. Used immoderately it has a peculiar intoxicating effect with great loss of muscular power, but is valued in medicine as a stimulant. The rhizomes and roots of Lily-of-the-valley were once popular in Russia as a remedy for dropsy. The root-stock of this plant is imported in pieces two or three inches long, covered with fine rootlets, and has a bitter taste. It has purgative qualities and is said to be sternutatory. Elecampane, introduced from Europe and familiar in our gardens and naturalized in the meadows and along the roadsides of the New England and middle states, is cultivated in Europe for its roots, which yield a tonic and stimulating extract, here used chiefly in chronic lung troubles and for some skin diseases. Its pungent taste is also familiar in tonics, and it is a favorite veterinary medicine.

Coltsfoot, the root of the perennial herb Tussilago Farfara, and of Comfrey, Symphytum officinale, are both in demand for cough mixtures, though the latter is gradually going into disuse. Colombo, the root of the Mozambique plant Jateorhiza Columba, is used as a tonic and antiseptic. Other staples are Bitter-root, Lewisia rediviva, the fleshy farinaceous roots of which are used by the Indians of the north-west for food; Berberis Aquifolium, or Oregon Grape-root, which comes in foot-long pieces and yields a bright lemon-colored bitter powder used for chronic skin diseases; Alkanet, Alchusa tinctoria, from the Grecian archipelago and southern Europe, valued for the deep red dye, and said to be used in the manufacture of spurious port wine; Arrowroot, from the West Indies and the Bermudas; Marshmallow, Althea officinalis; Lovage, Levisticum officinale, for flavoring in cookery and in barrooms; Black Cohosh, the root of the American herb Caulophyllum thalictroides; the porous Gentian-root, a remedy of the ancient Greeks and Arabians; the pungent, aromatic rhizomes of Galangal, from the East Indies and China, and used in bitters; Sarsaparilla, the roots of several tropical species of Smilax, and which has undergone great changes in reputation; Ginger, Zingiber officinale, from the East and the West Indies, and a staple in cookery and medicine; and Curcuma, or Tumeric, the root of Curcuma longa. This East Indian plant is used in medicines, condiments, chemical tests and as a dye, producing a yellow color, which by itself is fugitive, but it is largely used in conjunction with other dyes to produce special tints. It is also a harmless adulterant in drugs and spices.

No wide fluctuations in prices or supplies have occurred in recent years, since any scarcity in one locality, or attempt to make an artificial demand, is met by abundant supplies from other sections. The packages are generally bales of from fifty to one hundred and fifty pounds.

New York. *M. B. C.*

Plant Notes.

New Plants in Santa Barbara.

AMONG woody plants of recent introduction that have been blooming here, probably for the first time in the United States, not a few deserve special notice, as they are sure to become permanent denizens of our southern gardens, and some of them are suitable, also, for pot culture under glass in the north. Their wide range of usefulness will hardly surprise persons who are even slightly acquainted with the climate of southern California, when the botanical genera to which they belong and the countries from which they come are considered. Leguminous plants take the lead in number, of course. Without mentioning many Acacias from Australia—some of them quite remarkable—which, perhaps, have already bloomed elsewhere, we have from the same continent Goodia pubescens, a low, dense, flat-topped shrub, with light green trifoliate leaves, which for months has been literally covered with good-sized pea-shaped yellow flowers. Oxylobium callistachys s another yellow-flowered shrub, with larger flowers in

terminal spikes. It is of upright habit, with foliage nearly as silvery as that of the famous Silver Tree. The Mediterranean basin has contributed several species of Cytisus and Genista, among them Genista monosperma, a prostrate shrub growing in sandy beaches on the southern coast of Sicily, glaucous and wiry, with hardly any leaves and fragrant comparatively large flowers, which are white, with a crimson blotch; G. Æthnensis, from Sicily also, found at several thousand feet elevation on Mount Ætna, very like a giant among Genistas, attaining the size of a tree, with very fine leafless twigs, in habit like a Weeping Willow, and profusely covered with sweet-scented sulphur-yellow flowers during summer. This Genista ought to be hardy at least as far north as Philadelphia, and old specimens exist in the grounds of the Botanic Garden in Paris, as well as at Kew. Cytisus Palmensis, from the Canary Islands, has been greatly admired throughout the entire winter for its myriads of pure white, strongly

Fig. 33.—Iris Robinsoniana in a California Garden.

apple-scented flowers. This plant is sure to become highly popular in this country for growing in conservatories and for cut flowers as it appears to be in southern Europe. From Chili we have had in flower and fruit Lithraea molleoides, somewhat related to the Sumachs, a bushy rapid-growing evergreen tree. Its flowers are greenish and inconspicuous, and the fermented berries furnish a highly prized "chicha" or brandy in its native country. From Natal, south Africa, Dombeya Natalensis has been blooming during nearly the whole winter season. Its large white flowers are very attractive on account of their fragrance, which reminds one of the Syringa. At first glance they suggest a pure white large-flowered Cherry. This is a very rapid grower and essentially a winter bloomer, and we hope it is the forerunner in our gardens of many of its congeners. These all have showy flowers and are native of south Africa, and of Madagascar, from which we have already growing vigorously the noble Astrapæa Wallichii, said to be one of the most gorgeous flowering trees, with its very long clusters of large scarlet flowers.

To Australia we are indebted for Hymenosporum flavum, a near relative of the Pittosporums, but with flowers much larger than any of them, white, turning to yellow, and very fragrant; Carumbium populifolium, with greenish inconspicuous flowers and rich bold foliage, tinted with metallic hues, like other Euphorbiads; Prostanthera nivea and Westringia rosmariniformis, both belonging to the Labiatæ or Sage family, and white-flowered. We close the list with Helichrysum diosmæfolium, a remarkable tree belonging to the Compositæ. At present and for weeks it has appeared like a solid mass of silver, the flat umbels of its small everlasting flowers being several inches in diameter. It is said to grow twenty feet high in Australia, and certainly will grow as large in the fertile soil of California, and a very useful plant it is likely to prove to landscape-gardeners as well as to florists.

All the above-mentioned are shrubs or small trees; large-sized trees will take longer to reach the flowering stage. A very remarkable exception we find here in several species of the tropical genus Ficus, which often begin to bear "figs"—that is, flowers—when quite young, sometimes before they are two years old from seed. Such is the case with Ficus Bengalensis, F. glomerata, F. Indica, F. infectoria, F. oppositifolia, F. religiosa and F. retusa, all from India, and F. Chauvieri and F. Parceli, from New Caledonia and the South Sea Islands, all of which appear to be quite at home at Santa Barbara.

Santa Barbara, Calif. *F. Franceschi.*

IRIS ROBINSONIANA.—This plant was discovered in Lord Howe's Island by Charles Moore in 1869, and described by Bentham under the name of Morea Robinsoniana, but it was not until the spring of 1891 that it flowered for the first time in England, at Kew. This Iris is not only noted for

its exceptional size, but it is remarkable from the fact that there is no other species of the genus in the Australian continent nor anywhere nearer than China. The Kew plant was figured in this journal (vol. iv., p. 355), and we now give a picture of another plant (see p. 255), which is interesting because it is probably the first individual of the species which has bloomed in America. It is in the garden of Mr. G. P. Rixford, Secretary of the Academy of Natural Sciences in California, and is said to be sixteen years old from seed.

Iris Robinsoniana is a stately plant with leaves from six to eight feet long and from three to four inches wide, curving gracefully near the ends and of a healthy glaucous color. It is worth growing alone for the beauty of its foliage, which is more attractive even than that of the New Zealand Flax. The flower-scapes are six feet high to the first branches, and the individual flowers open in the morning and close permanently before night. These are four inches across when expanded and pure white, except at the base of the larger segments, where there are lines of golden yellow. Although individual flowers are so short-lived, they appear in succession for a long time, so that a single plant will bear two or three hundred flowers and continue to display them for a month.

For the photograph from which our illustration has been made we are indebted to Miss Alice Eastwood, the Botanical Curator of the California Academy of Sciences.

Cultural Department.

Seasonable Notes.

THE height of the flowering season is now here with plants in the hardy flower border, and the unusually wet weather has induced an abnormal growth, with the result that many plants are unduly crowded. I never remember to have seen so luxuriant development of Larkspurs, Poppies, Pæonies, Thalictrums, and, indeed, all such as love moisture, and this includes about all the plants in the borders. We have found it necessary this year to go about and pull out a great number of the Columbines at the close of the flowering time, or as late as it was possible to tell their colors. The tendency in all cultivated plants is toward reversion if left to themselves, and this is soon seen in a mixed border where self-sown seedlings are allowed to grow. Those thus produced are generally inferior to the parents that are the result of much careful cultivation and selection. Especially is this true of Phloxes, Larkspurs and Columbines. The remedy for this is the rigid weeding out of all that do not come up to the desired standard of excellence. If this is not done our gardens soon present the appearance of those that have been left to their own devices for years and are dominated by the old purple Phlox and a few other plants that are equally hard to kill or eradi ate.

The Rhododendrons have been specially good this year, better than ever before, and the growth is now in full progress. It is a great deal of labor to go over the plants and pick off the old flower-stems, but, like many other tiresome operations, it pays well and prevents the plants from wasting their energies in seed-production. After such a heavy strain on their resources in flower-production the growths will not be so strong as in other years, and it is, therefore, especially necessary this season to take off the seed-vessels as soon as possible.

Of Tulips grown in the border, and even those that are massed for spring effects, we do not consider it at all necessary to take up the bulbs after flowering; let them remain in the ground and plant some quick-growing annual over them. It will be found that next year the results will be even better than before, and this is especially true of hardy species, though most bulb treatises recommend annual lifting. We find that the dry period we get in fall ripens up with good results—better than if lifting is practiced. If Narcissus have been planted for a number of years, and do not flower successfully, it is because of starvation from crowding, and as soon as the foliage has dried up the bulbs should be lifted carefully, placed separately in boxes, labeled correctly, set in the shade to become moderately dry, and then stored away to be cleaned on some wet days and made ready for replanting in September. It will be found that all the varieties of N. poeticus will have live roots attached to the bulbs. This species seems never to be actually at rest, but there is less root-action at the time the others are dying down than at any other, so that it is safe to lift them with the others, even if there are live roots to be seen. It may seem trivial to tell about careful labeling of bulbs when lifting them, but we have found that with a moderately large collection, or even a small one, it is about impossible, in the first place, to lift every bulb in the ground, and, in consequence, it is better to plant in a different position next time, or mixing will be sure to follow. It also seems about impossible to label all so that they may be rightly distinguished at replanting time. This seems a matter to be easily accomplished, but let him who is sure of it try, and see how his bulbs look at flowering time next year, and the advice will probably not seem so unnecessary.

Any seedling plants that have been raised to add to the borders should be planted without further delay, and it is good practice to have such each year, either for the reserve border or for setting directly where they are to remain. It is also a good time to sow seeds of such as ripen early in the garden, for, if sown now, the plants will be large enough to set out in fall and save a lot of storage-room in the frames during winter and spring. There is no necessity for treating hardy plants under glass at all at this season, or, indeed, at any other, if sowings are made in early summer in carefully prepared seed-beds and transplanting is carried on during showery weather, remembering always the fact that the smaller a plant is, within reasonable limits, when set in its permanent position, the more certain it is to be long an occupant of the garden. Large plants rarely recover from the shift unless they have tuberous roots or some other reservoir to draw upon.

South Lancaster, Mass. *E. O. Orpet.*

Plants in Flower at Wellesley, Massachusetts.

THERE is a fine specimen of Hydrangea petiolaris now in bloom on the estate belonging to Mrs. Durant, of Wellesley, clinging, Ivy-like, to the trunk of a large Elm-tree. It grows rapidly. From a small plant seven years ago it now reaches fifteen feet and covers all but the north side of the trunk. The flowers are produced in short-stemmed cymose corymbs, with a multitude of white-stamened fertile flowers encircled with white, large-petaled sterile florets, resembling closely the flower-heads of the other so-called single Hydrangeas. It is increased easily from cuttings and layers.

Rhaphiolepis Indica, a charming little bush, is now blooming profusely in the flower garden at Wellesley. It is known as the East Indian Hawthorn, and belongs to the same family. The form and shape of its short corymbs of bloom would suggest the Mountain Laurel, and it is almost as showy. It is a native of eastern Asia, not hardy here, and must be wintered in the same way as tender Rhododendrons and evergreens. It is propagated from cuttings of half-ripened shoots.

Styrax Obassia is now flowering finely in the grounds belonging to Mr. H. S. Hunnewell. It is one of the most attractive of the many hardy shrubs introduced within late years from Japan, where it is a native of Hondo and Yezzo. The specimen here assumes the aspect of a small tree, in its foliage resembling the Linden. Its attractive snowflake-like blossoms suggest the Halesias, and we find that the Styrax typifies the family to which both belong. The blooms hang on short stems from the under side of the branches, and are almost completely hidden by dense foliage, but one would almost recognize the plant by its strong Hyacinth-like perfume. It is said to be difficult to establish, and probably on account of this its hardiness has been in doubt. With a suitable location in partial shade and the protection of taller trees, it is here a thrifty and robust-looking plant. It can be multiplied freely from cuttings.

Benthamia Japonica (Cornus Kousa) is here a small upright-growing tree. One would recognize it at a glance as an ally of our Cornus florida, though, coming into bloom later when vegetation is in full leaf, it is not so conspicuous an object. The bracts differ from those of the American species in being ovate-acuminate instead of obovate and emarginate.

Wellesley, Mass. *T. D. Hatfield.*

Rock Garden Notes.

UNDER the influence of our hot summers Thymus serpyllum is scarcely recognizable from its appearance in its native habitats. The stems grow from one to two feet long in a season. It flowers freely enough, both flowers and foliage being much lighter in color than in its native haunts. Geranium sanguineum, a European species which grows naturally on rocky cliffs, is one of the most reliable plants we have for the embellishment of the rock garden during the entire spring and summer. Seldom do we see it without dozens of its large

pink flowers nestling among the star-shaped leaves. It grows only about ten inches high, and a plant two years old will, under favorable circumstances, grow to about three feet across. Young plants are quickly raised from seeds. North of here Silene maritima ought to do well in the rock garden. It behaves well enough with us until about the middle of July, when it succumbs to the hot weather. Seeds are saved of it, however, and sown in the fall and left to themselves in a cool frame for the winter. This species has dense masses of light green foliage, only a few inches high, and the flower is pure white, with a very large inflated calyx.

Silene Armeria is desirable for this class of work if kept within proper bounds. In the garden here it would not be long in appropriating most of the space to itself if left alone. It is a very free seeder. The seed of this year's flowers self-sown will come up about the beginning of September and form bushy little tufts before cool weather. The seedling plants come into bloom early in the spring and are followed by others which germinate after the cold weather has gone.

Pentstemon Torreyi when not in flower grows about six inches high. The flower-stalks, however, get to be about three feet tall, and although they are flowered sparingly, their bright red color makes a very effective plant.

Saponaria ocymoides is almost past blooming; it forms a dense cushion of five-petaled pinkish flowers. The climate here seems to suit it exactly.

Polygonum repens, as its name implies, creeps close to the ground, rambling over the stones and filling up chinks in a pleasing way. In the hot months the foliage is of a reddish tinge, but the full crop of flowers is not produced until the fall, when even small plants display myriads of close, round heads of dull pink flowers. With us it is not hardy, but it is well worth saving a pinch of the seed every year and treating the plant as an annual.

Cerastium Biebersteinii is past blooming for the season, and the flower-stalks have been cut off; the silvery foliage remains, however, and is attractive all the season. This species does much better with us than the common C. tomentosum.

Spiræa Anthony Waterer is an excellent companion in the rock garden to the Japanese species, S. bullata. All last summer the former displayed its rose-colored flowers, but it is well worth growing for the foliage alone, which is partly variegated with white and sometimes takes on a bright rosy tint.

The Onosmas are rather fickle plants to deal with in this latitude, where the soil is baked, and dry soon after drenching rains. Sometimes a plant in full bloom will suddenly die down, root and branch, while others near it will continue in perfect health. They are among the most desirable rock-work plants we have on account of their graceful appearance when in bloom and their delicately scented flowers. O. stellulatum is not quite so floriferous as its variety, Tauricum. It should be planted in a light airy place where the sun will not strike directly on the root-soil. Pieces of rocks placed around it form a good protection. Cuttings will root under the north side of a wall if kept from wilting by the aid of a glass cover.

An odd-looking plant is Baptisia perfoliata, with all the leaves facing outward from the centre and placed perpendicularly on the stalks. It has rather pretty yellow flowers.

Botanic Garden, Washington, D. C. *G. W. Oliver.*

Greenhouse Notes.

THE fancy-leaved Caladiums are always considered effective, and since the summer is their growing season they are now a convenient addition to the conservatory. In fact, such an attractive plant as C. argyrites is almost indispensable even in a small collection. These plants should now be growing rapidly, and need abundant watering and good soil. Comparatively large shifts in repotting are better than frequent disturbance of the roots. Well-rotted cow-manure is one of the best fertilizers, and from one-third to one-half the compost is not too large proportion for strong-growing varieties. Although much water and a moist atmosphere are required for Caladiums, an extremely high temperature and heavy shading should be avoided. Very large leaves may be developed by these means, but it is done at the expense of substance and durability, and such plants will scarcely bear removal to an ordinary conservatory, and still less the exposure of an exhibition hall.

Gloxinias and Tuberous Begonias are also now approaching their prime, and while they assimilate large quantities of water when in full growth they should not be watered much overhead, or the leaves of Gloxinias are likely to become diseased. When well established, clear manure-water of moderate strength is beneficial, given at intervals of about three days. In the race for large and durable flowers of Tuberous Begonias, some interesting and beautiful varieties of a different type seem to have been neglected—for example, B. Boliviensis, B. Chelsonii, B. intermedia, B. Sutherlandii and B. Weltoniensis, all of them easy to grow, readily increased by cuttings and free in blooming.

Gesneraceous plants are at their best during the summer; some of them interest for the profusion of flowers in many brilliant colors and some for their rich foliage. The handsome foliage plant of this family is Drymonia Turialoæ, of moderate growth, and was probably more common in gardens twenty years ago than now. It is a native of South America, with large oval leaves of much substance and silvery gray in color; the flowers are also quite large and creamy white, and are produced with much freedom from the axils. It propagates readily from cuttings, and the leaves will root as do those of Rex Begonias, but are rather uncertain in forming plants.

Gloriosa superba is attractive for the conservatory in summer if several bulbs are planted in a large pot and the growths trained informally over a trellis. It is, however, impatient of any disturbance to its roots after growth has begun, and the best method is, therefore, to plant the bulbs in the pot in which they are to remain for the season. A rich, light loam is the best, and after potting water should be given sparingly until the plants have made considerable growth, for sour soil is fatal to success. The best specimens I have seen were grown in a warm house in full sunlight.

For a cool conservatory Tropæolum tricolorum is an admirable little vine for pot culture. When the tubers are first planted the directions for watering Gloriosas should be followed. A graceful method of training is by means of some twiggy branches from a dead Cedar-tree placed in the pot, on which the slender shoots are permitted to ramble at will. A well-grown plant under this plan is a picture of unstudied beauty.

A collection of native pitcher plants (Sarracenias) and hybrids can be made another interesting feature of the garden under glass. A high temperature is not necessary, and the conditions in a Camellia-house prove about right. Such kinds as S. flava, S. Drummondii, S. rubra, S. variolaris and S. psittacina are the best, and favorable conditions for their culture are found in as close an approach as possible to the conditions of a natural sphagnum swamp. The pitcher plant of the Pacific coast, Darlingtonia Californica, is also a most interesting species, but, unfortunately, is seldom an entire success under cultivation.

Holmesburg, Pa. *W. H. Taplin.*

Correspondence.

The Sycamore Blight.

To the Editor of GARDEN AND FOREST:

Sir,—I observe that the Sycamore-trees in this section are all losing their leaves. The leaves seem to have been destroyed by some disease or some insect, so that they present a sorry appearance. I should be glad if you would tell me the cause of this defoliation, and, if possible, suggest some remedy.

White Plains, N. Y. *R. A. S.*

[This blight of the Sycamore, Platanus occidentalis, now so prevalent, which gives the trees such a distressed look, is due to the unusual development of the fungus Gleosporium nervisequum. This disease has been at work upon the Sycamores for several years, and, gradually increasing in force, the time has come when either the fungus must be checked or the host will perish. Already many trees have died, and at the present time a large portion of the Sycamores in the eastern states are nearly leafless, and the young branches are dead or nearly so. The fungus develops early in the season, and, attacking the leaves before they are fully grown, causes them to turn brown, and, with their dead young shoots shriveled and clinging to the larger stems, the trees are noticeable for their forlorn appearance. Attacking as it does the leaves and the buds that might otherwise soon produce new foliage, the fungus is particularly destructive.

It is not improbable that spraying would do something toward saving the trees, but the large ones are not easily covered with a fungicide, and, owing to the trouble and expense, one will not usually spray a tree unless it is a particularly precious one. In such a case the standard Bordeaux mixture could be used with a pump in the same

way as insecticides are applied to large Elm and other trees. The numerous dead branches upon a victim to this blight harbor the fungus, and they should be removed before spraying will have its best effect.

Considering the history of this disease, its insidious nature, the large size of the trees and their almost lifeless appearance, it looks as if heroic treatment with axe and fire was the only way to meet this enemy. I lately saw a long line of Sycamores standing as unsightly victims of disease along a village roadside and thought then that they should give place to trees not susceptible to such a relentless enemy as this anthracnose.]

New Brunswick, N. J. *Byron D. Halsted.*

The Durability of Pitch Pine.

To the Editor of Garden and Forest:

Sir,—My grandfather settled in Sussex, the northernmost county of New Jersey, in the year 1801, where he bought a small forest clearing and lived in a log-house which was then standing. Some twenty years later he built another house, and since the flooring in the log-house was perfectly sound he used it in part of the new house. This flooring was made of what was locally called Yellow Pine—really it was Pitch Pine, Pinus rigida—and I well remember as a boy, nearly half a century ago, seeing the pitch fry out of the boards near the kitchen stove. The original log-house must have been built when nails were expensive, for the boards had in them auger-holes, through which they had been pinned to the sleepers by wooden pins. Half a dozen years ago the part of the house where the old flooring was laid was taken away, and these pine boards were perfectly solid, heavy with pitch and apparently good enough to endure another hundred years of use.

Deckertown, N. J. *W. A. S.*

Exhibitions.

Horticulture at the Tennessee Centennial Exposition.

THE visitors who have attended national or state expositions in this country which aim to represent the highest achievements in horticulture have usually been disappointed. Of course, the perishable nature of horticultural products makes it difficult to show them well, while in all the large displays the classification has been unnatural and incomplete. Even at the Columbian Exposition, which exceeded in interest and variety previous attempts in this direction, vegetable gardening and the nursery industry were inadequately represented, while the floricultural exhibit was not a true index of the status of that industry in this country. At the Tennessee Exposition the horticultural exhibit is merged into the general agricultural display. This is seen in a structure three hundred feet long by two hundred feet wide, with a central dome a hundred feet high. Here are the state and county exhibits of the products of the farms, orchards and gardens of the south. The prominent feature of the pomological display is the amount of fruit preserved in some transparent liquid and held in glass jars. Of these state and county displays that from Georgia is the most elaborate, the bottled fruit being uniformly well preserved and artistically arranged in irregular pyramids. Many of the jars or bottles are of elaborate design and ornamentation. Various preparations are used for saving the fruit, the fluid often being pure water containing a small amount of sulphurous acid, salicylic acid, or corrosive sublimate. For preserving berries a one per cent. solution of boric acid is the most satisfactory, especially for red and black raspberries, blackberries, red and black cherries, black currants and other red or dark-colored fruits. The Florida exhibit contains a fine display of citrus fruits preserved in sulphuric acid used at the rate of about two ounces to a gallon of water. But, although this preserved fruit makes a fine display, it is from an educational point of view of comparatively small value. The glass jars exaggerate the size of the individual fruits so that they are deceptive, and the method admits of no sampling, so that some of the most important characteristics of the varieties are entirely lost. It is just to say, however, that these exhibits were the centres of attraction in the agricultural building, and that Georgia, Florida, Tennessee and other states which made strong competitive displays in this direction will be amply repaid for all their expense and trouble. Many visitors gained broader ideas of the horticultural possibilities of the south than they had possessed before.

The Tennessee June exhibit of fresh fruit, while meagre, was instructive. But even here there seemed to be an unwritten law that what was lacking in quantity or quality must be made up in fantastic designs.

The Sneed peach was one of the first large fruits to be exhibited. It is said to be a descendant of the Chinese Cling, and is thought by many to mark the introduction of a new type of very early peaches. Following the Sneed in point of earliness came Alexander, and unnamed peaches from various parts of the state were thereafter received almost daily.

Cherries of many varieties have been on exhibition during nearly the whole of June. The earliest varieties were the Dyehouse and Early Richmond, and later the sweet cherries. As showing something of the range of season covered by this fruit as well as the difference in latitude and the short time that elapses between blossoming and maturity, it may be stated that at the time the first cherries were exhibited from Tennessee some varieties were still in bloom in northern Ohio.

There were a few creditable exhibits of nuts, but no adequate representation of what promises to be a profitable industry. The most important and valuable displays were of Pecans, and these native nuts are now seriously attracting the attention of fruit growers.

It is to be hoped that during the progress of the exposition more attention will be paid to the fresh products of the orchard and garden. For example, our native and introduced plums ought to make one of the most varied and attractive exhibits of late summer and early autumn fruit. They can be readily shipped; they keep well on plates and in nearly every state there are varieties that can be grown with satisfaction and profit. There is a wide and growing interest in our native plums, and they seem destined to play an important part in the development of the horticultural possibilities of the interior and southern states. Over fifty varieties were exhibited at the World's Fair in Chicago, and the number has been greatly increased since then.

More attention should also be given to the products of the vegetable garden. The hope of the south lies in a more intensive and more diversified agriculture and horticulture. Small holdings devoted to fruit and garden vegetables must take the place of some of the large Cotton and Tobacco plantations, and then the real economic advantages of the south will not only be appreciated, but improved.

Columbus, O. *William R. Lazenby.*

Boston Rose and Strawberry Show.

THE conditions for outdoor Roses have been so good this year that every one expected that the Rose show here would excel all its predecessors, but the season was late, and at the date when it was generally supposed Roses would be just at their best, or perhaps going into a decline, the best buds had not really opened. Still, the two hundred vases of General Jacqueminot sent up from Pomfret, Connecticut, by Miss E. J. Clark (John Ash, gardener) were as fresh and good as it is possible to grow them in the open air, and they made a mass of crimson which will not soon be forgotten by any who saw them. Two large tables were filled with Roses from Miss Clark's garden, the best of which were such standard varieties as Fisher Holmes, John Hopper, Mrs. John Laing, Baroness Rothschild, Duchess of Teck, Magna Charta, Paul Neyron, Marquise de Castellane, Ferdinand de Lesseps, Baron de Bonstettin, Madame Gabriel Luizet and the old Centifolia. M. H. Walsh has usually brought a magnificent display from the estate of Joseph S. Fay, and he had the usual number of fine flowers, although there was less variety than in former years, owing to the lateness of the season. The light pink Catherine Soupert was superb, and his new hybrid Tea, Lilian Nordica, which last year gained the silver medal, was again shown in first-rate form. It is pure white and seems very hardy. It is a cross between the hybrid Tea, Margaret Dickson, and the pure Tea, Madame Hoste, so that it is three-quarters Tea blood. W. A. Manda, of South Orange, New Jersey, exhibited some of his crosses between Rosa Wichuraiana and such Tea Roses as Perle des Jardins and Madame Hoste which have a fine Tea fragrance and evergreen habit.

The Orchids were unusually good. The prize-winning collection of six plants in bloom was that of Mr. E. V. R. Thayer (E. O. Orpet, gardener), which contained fine specimens of the peculiar Anguloa Ruckeri, Cattleya Mendeli in a white form with a tinted labellum, Miltonia vexillaria, Cattleya gigas, Cypripedium Curtisii and C. superciliare. Mr. J. E. Rothwell showed a superb Oncidium papillio, Dendrobium Phalænopsis, a splendid variety of Lælia grandis with bronze sepals and petals and violet lip, and excellent specimens of Odontoglossum crispum, Cattleya Mossiæ and Cypripedium bellatulum. W. P. Winsor (Peter Murray, gardener) had also a

noteworthy collection. Among them was conspicuous a specimen of Epidendrum vittalinum with sixteen spikes of orange-scarlet flowers, besides Miltonias, Cattleya Mendeli, Cypripedium grande with five stems and fifteen open flowers, and other admirable plants. Mr. W. A. Manda was awarded a special prize for a new form of Lælio-Cattleya Arnoldiana with violet sepals and petals, purple lip and yellow throat.

The herbaceous Pæonies of Mr. T. C. Thurlow attracted much attention, especially the seedlings, some of which had decided merit. Mr. L. W. Goodell showed two tubs of fine Nymphæas, which made a conspicuous feature in the upper hall and proved how much we owe to the skill of Monsieur Marliac for some of the finest early effects in our outdoor gardens. Mention should be made also of Mr. N. T. Kidder's specimen of Bougainvillea Sanderiana, which was unusually bright and well flowered, of a few belated Rhododendrons shown by James Comley, of the superb Sweet Williams of Mr. W. N. Craig, Taunton, Massachusetts. Mr. Craig also had a general collection of border flowers such as Carnations, Coreopsis, Campanula persicifolia, Foxgloves and many more. Carl Blomberg also had an excellent collection of seventy herbaceous plants, and Mrs. E. B. Richards had a display of wild flowers which included the most attractive kinds now in bloom, and had a distinct educational value.

The strawberries were not as numerous as they have been in former years, but some of them were as big as peaches. Marshall still holds the lead hereabouts, and judging from the magnificent samples shown by Varnum Frost, G. V. Fletcher and C. H. Souther it will not soon be superseded. There was also a good display of vegetables. Among the principal prize winners besides those already mentioned were Kenneth Finlayson, the Bussey Institution, Rea Brothers, J. L. Gardner, Patrick Kane, W. H. Spooner, Miss E. M. Gill and W. C. Winter.

Boston, Mass. *R.*

Recent Publications.

The Spruce Forests of Maine.—I.

Third Annual Report of the Forest Commissioner of the State of Maine, 1896. Augusta: Burleigh & Flint.

That the forestry question in the United States is rapidly emerging out of the hands of the popular propagandist into those of the practical business man is evidenced by several of the publications that have emanated within the past year from official sources. The report of the Forest Commissioner of Maine deserves perhaps the most credit in that it approaches the subject entirely from the business side of the forest owner or forest exploiter. The Commissioner, himself, who fills the position only as an additional duty to that of Land Commissioner, occupies only ten pages of the report, in which he briefly discusses the results of the administration of the forest fire laws. He dwells on the fact that the mere knowledge of the existence of an organized service, evidenced by the "fire notices" widely displayed, has been sufficient to prevent many fires; yet lack of power to act in cases of emergency is complained of, and a fire patrol to follow every railroad train in the dry seasons—which appears a somewhat extravagant demand—is suggested. After a few slurs on the collection of "scientific data" as against "wholesale practical information," he introduces the report of Mr. Austin Cary, who received his first insight into this line of work when employed in the Division of Forestry for the purpose of making measurements of the rate of growth of Spruce and White Pine and afterward made a short trip to Germany in order to gain some rudimentary knowledge of German forestry methods. This report contains so much that is valuable, new, suggestive and desirable to be brought forcibly to the attention of Maine lumbermen that it is a matter of regret that Mr. Cary has chosen a diffuse style and the introduction of much irrelevant and personal matter. In these busy days one objects to working over 200 pages of ore to get out fifty pages of pure metal.

The subject of the report comprises, briefly stated, an investigation into the condition and promise of the Spruce forests of a part of Maine, namely, the portion on the Kennebec and Androscoggin River basins. The report attempts a statement from hearsay of the amount of standing timber; gives a description of the conditions of different spruce areas, especially after the lumberman has cut them over; and, what is most interesting, furnishes data regarding the growth of spruce with a view of determining what aftergrowth takes place and what method of cutting may be most profitable. Various other matters are discussed in separate chapters, such as the methods of scaling, showing the irrelevancy of the board-measure unit, statistics of lumber cut and boomed in various places, description of the methods of computing growth, calculations of growth of spruce on cut-over lands, waste of logging, etc., all matters of great interest and importance and often well stated.

To briefly summarize the more important results of this investigation, we learn from them that the spruce area of Maine, that which bears spruce in merchantable quantity, is found on the broad, mountainous plateau whose axis runs from the White Mountains across the Rangeley and Moosehead Lakes to Mars Hill at the St. John River, by which the state is divided into a northern and southern slope. The area thus containing spruce is set down as 22,000 square miles. The spruce rarely occurs in pure growths, except on the higher elevations; it is mostly mixed with hardwoods, which form two-thirds to three-fourths of the natural cover, and toward the outer boundaries of the spruce area, with decrease of elevation and improvement of soil, the hardwoods become more and more prominent, finally occupying the ground practically by themselves. The centre of best spruce development, in number of trees at least, is found near the Rangeley Lakes and Moose River and westward to the White Mountains in New Hampshire. Individual development, to be sure, improves with soil conditions, and the best sizes are found on the best hardwood lands; the maximum average dimensions being set at eighty feet in height and two feet in diameter, breast-high.

The estimates by local lumbermen of available spruce standing are given as 1,260 million feet on the Kennebec River with a total spruce-producing area of 1,964 square miles, of which 400 remain virgin, and 3,600 million feet, board measure, on the Androscoggin, in Maine, on a spruce-bearing area of 830 square miles, of which 420 are estimated virgin. Of this latter figure Mr. Cary says that it includes trees down to the smallest log size, and is based on very close economical utilization, while the usual practice in other localities of Maine would bring this figure down to 2,000 million feet. The average stand per acre on the basis of the larger figure would be 6,800 feet, and considering that half the area has been cut over, the average stand for this region, Mr. Cary says, should probably be set as high as 9,000 feet when in natural condition. From the various measurements of actual acre-yields, however, it would appear unsafe to apply this figure to any large area; for the best measured acre, in Grafton, Oxford County, gave with 526 Spruce-trees out of a total of 884 trees of all kinds and a total volume of 2,760 cubic feet of spruce, only 76 trees over eight inches in diameter, which scaled 8,792 feet, board measure, and another acre in the same county with 191 Spruce-trees, out of a total of 535 trees of all kinds and sizes and a volume of 2,220 cubic feet of spruce, gave 63 trees over eight-inch diameter, which scaled 7,352 feet, board measure. The majority of trees, it must be understood, are under a three-inch or at least under a six-inch diameter, while the eight-inch diameter seems to limit the available log size. Another acre in Somerset County, Kennebec drainage, on rocky land, moss-covered and of slow growth, 2,000 feet above sea-level, which, as the author states, represents a large stand for spruce, "as much in fact as could well grow on the ground in this size of trees," "their crowns shading the ground about as densely and evenly as Spruce ever does," contained 346 trees of Pine, Spruce and Fir over three-inch diameter, of which 266 were Spruce with a volume of 2,800 cubic feet, while the thirty Pines, a forgotten remnant, all over eleven inches in diameter, represented 2,040 cubic feet in the yield, each equal to 6,000 feet, board measure, or 12,000 to the acre.

Since the present cut in the regions under consideration is estimated at 310 million feet a year, against a supply of virgin timber of 4,860 million feet, even without an increase in the cut, which is always to be expected, there would appear hardly sixteen years' millable timber in sight under present methods of cutting, and it appears that on the Androscoggin, which represents the larger portion, the cut is even now as close as it could be.

Washington, D. C. *B. E. Fernow.*

Notes.

The latest of Mr. W. A. Manda's hybrid Roses to bloom is a seedling from Rosa Wichuraiana fertilized with the crimson Tea Rose Meteor. The flower is a light pink, very double, and the plant is a strong grower, prostrate in habit and with foliage which remained green all winter and stood out-of-doors without any protection.

Nuts for Profit is the title of a little paper-covered book of 150 pages which has been prepared by John R. Parry, of Parry, New Jersey. It contains much useful information collected from many sources on different kinds of edible nuts and their cultivation as adapted to various sections of the United States, besides some useful receipts for preparing nuts for the table in attractive ways.

We have received from Professor William Trelease, Chairman of the Nomenclature Committee of the Society of American Florists, a note, inviting our readers who may have observed cases of misnaming, renaming or any other irregularities in the names of plants which are bought and sold in America, to notify him of the fact by the first of August. It will facilitate the labors of this committee, which reports on the nomenclature of the decorative plants handled by American dealers, if such irregularities are promptly reported and full details are given.

Special consignments of small lots of sugar corn have been received from the south for a month past, but these have been sold directly to a few of the best hotels, and not opened up in the markets at all. On last Saturday the first corn from Delanco, New Jersey, sold in Washington Market at sixty cents for a dozen ears. Cymlings, the flat scalloped squashes, new celery, peas and cabbage are coming from Long Island now, and on Saturday the excessive supply of southern string-beans was further increased by the first large lots of this vegetable from Long Island. The round sort known as Refugee brought double the price of the less tender flat kinds. Large fleshy Windsor beans are also now in season. Occasionally Peach tomatoes, from California, so named from their striking resemblance to that fruit in shape, color and bloom, are seen in the wholesale markets, where they seem mainly to be regarded as a curiosity. Lima beans are expected daily from the south, and when these and new sweet potatoes are in the market the entire list of fresh vegetables will be complete. Asparagus continues one of the staples, with cauliflower, cucumbers and eggplants. All vegetables are coming in from southern and neighboring states in immense quantities, and although they are of excellent quality the urgency of the demand in the wholesale markets does not keep pace with the increasing supply, so that while the consumer pays an average price, the grower finds his profits swallowed up in expenses for packing, transportation, commisions and the like.

The trays of the Italian and Greek fruit venders which line the curbs of sections of our downtown business streets are now stocked with a wide variety and indicate the range there is to choose from. Each tray offers but one sort, and for a week past peaches, from California, have been abundant and attractive and of unusually good texture and flavor. Apricots are also plentifully seen, with trays of Le Conte pears, bananas, plums and cherries. The bright and showy light Royal Anne cherries are almost as large as the smaller Botan plums now coming from Florida, and Black Tartarian cherries are almost as handsome in their rich dark color and large size. White and red currants from the Hudson River section of the state, and raspberries from New Jersey, are seen in large quantities. The supply of strawberries is beginning to lessen and is mainly from this state. Huckleberries and cherries are coming from as far north as New Jersey and New York, and blackberries from Maryland. Northern Spy and Russet apples from last year are still in market, and five barrels were exported so late in the season as last week, when considerable quantities of green apples are being received from North Carolina. In the fancy-fruit stores last year's P. Barry pears are also yet in stock. Niagara grapes, watermelons and muskmelons are all to be had, the latter mostly small. Some muskmelons from New Orleans are of extra-large size, however, and those of spicy flavor readily command $3.50 for a box of six fruits in wholesale lots, while some of the same size, lacking in quality, bring but $2.00. Some really good fresh figs came into this market last week from California. They were large, plump, and with an attractive clear purple skin, and while, of course, their flavor had suffered somewhat from the long journey in a refrigerating car, they were pronounced delicious by the few persons who could afford to buy them at $1.00 a dozen, and $2.00 for the choicest.

Everybody in England has lately been engaged in summing up the progress of the kingdom during the sixty years of Queen Victoria's reign, and *The Gardeners' Chronicle* publishes an interesting résumé of the progress which has been made in horticulture during this period. In regard to Roses in particular we are reminded that when the young Queen was crowned the Hybrid Perpetuals had not yet risen to the dignity of a class, Tea Roses were almost unknown, the dwarf Polyantha Roses had not been introduced, and what are called Summer Roses were about the only adornment of gardens. The advance in Hybrid Perpetuals, Roses of exceedingly mixed origin, has been most extraordinary. The hybrid China Rose, Gloire des Rosomanes, may have been in existence at that time, but General Jacqueminot, which is a probable seedling from it, did not appear until as late as 1853. La Reine was one of the introductions of Laffay as early as 1839, but the great number of exhibition Roses which we know to-day were not produced until the sixties or seventies. Of Tea Roses, Safrano and Bon Silene date from 1839, while Devoniensis, the earliest English-raised Tea, was sent out in 1841. All the great Tea Roses have appeared since Niphetos was sent out in 1844. In the Noisettes, which, as is well known, are of American origin, there has been great improvement, especially since the introduction of Tea blood into the original stock. Of course, the hybrid Teas are of comparatively recent origin, while the Polyantha Roses, with such developments as the Crimson Rambler, are all modern additions to our gardens. Rosa rugosa came from Japan many years ago, but R. Wichuraiana and other single-flowered species are later additions to our garden plants, while the efforts to hybridize the Sweetbrier, Rosa setigera, and the single-flowered Roses generally with other classes were begun but yesterday. It may be added as a good tendency of the times that the single Roses which were comparatively neglected in the early years of the Victorian era are now assuming the position they deserve as garden plants of the highest decorative value.

Three plants belonging to the Mustard family, which are weeds in the fields of western Europe, have been reported within the past four years in several localities in the northern United States and Canada. The first of these is Gray Berteroa, Berteroa incana, an annual with a rosette of leaves at the base, numerous white flowers and seed-pods a quarter of an inch long divided into two cells, each of which contains six seeds usually. These seeds are brown, of about the same size and weight as those of Red Clover, and therefore difficult to separate if the two become mixed. Since an average Berteroa-plant contains five thousand seeds, while a Red Clover plant produces in two years about one thousand, it is very easy to see that if only a small per cent. of the weed seeds germinate they will soon be much more abundant than the Clover. Of course, no Clover or Grass seed should be gathered from fields infested with the Berteroa. Wherever a few plants are found they should be pulled up by hand, and where they are abundant they should be mowed as often as the flowers appear. The Hare's-ear Mustard, Conringia orientalis, is another slender-branching annual, smooth and grayish. It is already in the grain-fields of Manitoba, and the seed of wheat and oats in that region ought to be carefully cleaned. Flax-seed from infested fields should not be saved for sowing at all. It is a conspicuous plant, easily recognized, and it should be pulled or mowed as soon as seen to prevent establishing it in new localities. Its white flowers are handsome enough for the flower garden, and its tender leaves, with a mild mustard flavor, make a good salad, but if ever used in the garden none of the seeds should be allowed to fall. Ball Mustard, Neslia paniculata, so called because its pods, about one-twelfth of an inch in diameter, are nearly spherical, is the third weed. It does not produce many seeds, and it has certainly spread slowly, because it has been known in America for fifty years. It has become abundant and troublesome in the grain-fields of southern Manitoba, however, and it seems to be developing an increasing ability to spread. These plants are described and figured in a circular prepared for the Department of Agriculture by Lyster H. Dewey, assistant in the Division of Botany.